

Diabetes: An Epidemic of a Chronic Disease

**Barbara Kondilis, MSW, MPH,
Joann Lindenmayer, DVM, MPH, and Dona
Goldman, RN, MPH**

Diabetes was the sixth leading cause of death in the United States in 1999.¹ Diabetes often leads to heart disease, stroke, blindness, or amputation of the leg or foot. In Rhode Island, diabetes was the underlying cause for 291 deaths during 2000 and a contributing cause for another 753 deaths (Rhode Island Department of Health, Office of Vital Statistics, 2002; Unpublished 2000 mortality data).

In recent decades, the prevalence of diabetes has been increasing at near epidemic rates. Nationally, diabetes was diagnosed in approximately 11.1 million persons (6.2 % of the population) in 1999.¹ The number of newly diagnosed cases of diabetes was 1.0 million people for those aged ≥ 20 years in the year 2000.¹ For every two cases of diabetes that are diagnosed, an additional case has not been diagnosed.² As of the year 2000, an estimated 70,000 Rhode Islanders aged ≥ 18 years had diabetes (with 46,000 cases diagnosed).

Type 2 diabetes represents 95% of all cases of diabetes. There is a strong association between obesity and the development of Type 2 diabetes.³ Obesity has been increasing both nationally and in Rhode Island, and research has documented that lifestyle changes, including weight loss and physical activity, can reduce the incidence of diabetes in high-risk populations.⁴

Methods. Rhode Island uses the Behavioral Risk Factor Surveillance System (BRFSS) to track population information on diabetes. The BRFSS is a statewide telephone survey of randomly selected adults (aged ≥ 18 years) who live in households with telephones. It asks respondents questions about several health-related behaviors. During 1994-1997, the number of interviews performed was about 1,800 per year (approximately 150 per month during 1995-2000); during 1998-2000, interviews increased to approximately 3,600 per year (300 per month). Fifty states and four territories perform the BRFSS with funding and methodological standards provided by the Centers for Disease Control and Prevention (CDC).⁵

The BRFSS question used to measure diabetes prevalence for the years 1994 – 2000 was: “Have you ever been told by a doctor that you have diabetes?” Answers are 1) yes; 2) yes during pregnancy; 3) no; 7) don’t know; 9) refused. The survey also asked height and weight of each respondent, from which the body mass index (BMI), defined as weight in kilograms

divided by the square of height in meters, is calculated. A BMI of 25 - 29.9 is considered overweight, and a BMI of 30 or above is considered obese.

Results. The prevalence of diagnosed diabetes has been increasing in Rhode Island during the period examined, 1994-2000. (Figure 1) In 2000, the prevalence among adults, 6.0%, was nearly one third higher than the prevalence in 1994, 4.6%.

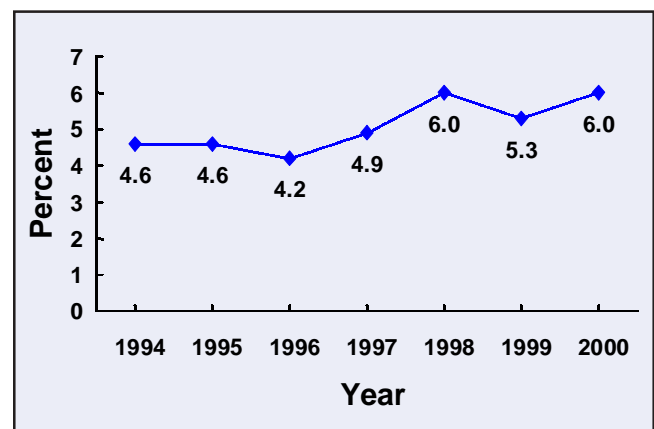


Figure 1. Prevalence of diagnosed diabetes among Rhode Island residents aged ≥ 18 years, by year, 1994-2000.

Diabetes is far more commonly diagnosed among older adults than younger adults. (Figure 2) The prevalence is highest among adults aged ≥ 65 years, followed by adults aged 45-64 years and persons aged 18-44 years. Compared with the 18-44 age group, the prevalence increases nearly five fold in the 45-64 age group and nearly seven fold among those aged ≥ 65 years.

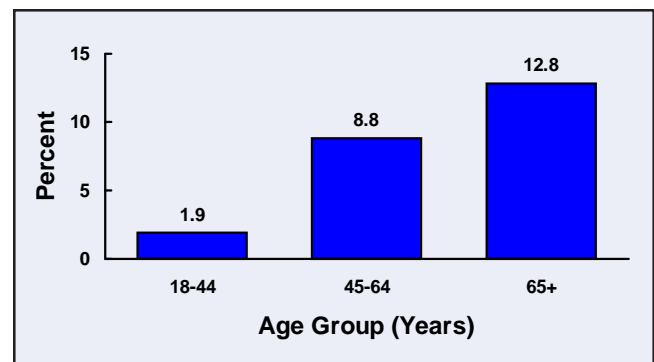


Figure 2. Prevalence of diagnosed diabetes among Rhode Island residents aged ≥ 18 years, by age group, 2000.

During the period 1994 – 2000, the proportion of people who were obese among adult Rhode Islanders increased from 13.4% to 17.1%, or about 20%. (Figure 3) Increases in obesity were evident among all age groups, but the increases among the elderly (up 36%) and younger adults (up 32%) were

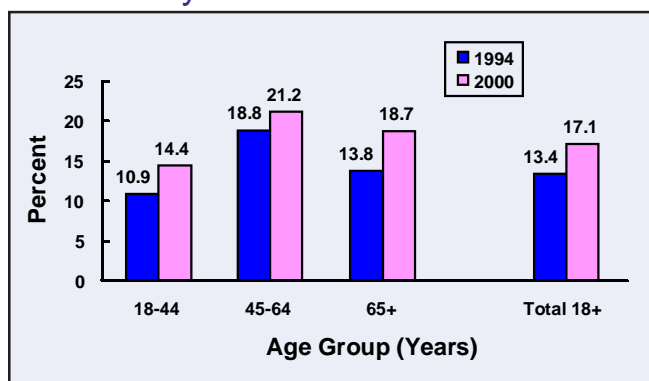


Figure 3. Prevalence of obesity among Rhode Island residents aged ≥ 18 years, by age group and year, 1994 and 2000.

noticeably greater than the increase among those aged 45-64 years (up 13%).

Discussion. The Diabetes Control Program (DCP) at the Rhode Island Department of Health is dedicated to integrating health systems for improved provider and patient support for better diabetes control. The DCP is working towards fulfilling the diabetes-related objectives of Healthy People 2010 on reducing mortality, reducing disease burden, reducing disease complications, and increasing health services and patient protection, including diabetes education.³ The DCP primarily focuses on secondary prevention and is moving to include primary prevention with community collaborations and guidance from national experts, e.g., CDC.

National and international studies such as the Diabetes Prevention Program (DPP) study and the Finnish Diabetes Prevention Study have documented that primary prevention of type 2 diabetes is possible through weight control and physical activity, in persons with impaired glucose tolerance.⁶ Local and national health initiatives face more than programmatic challenges. The ultimate challenge is to encourage persons to modify their behavior to prevent obesity and to better manage their diabetes. This includes larger systemic changes such as environmental modifications (i.e., safer walking areas, modest food portions in restaurants, healthier food and beverage choices in schools), and municipal, state, and national policies that encourage people

to make better dietary choices and that encourage physical activity.

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Barbara Kondilis, MSW, MPH, is a Public Health Prevention Specialist from the Centers for Disease Control and Prevention, Epidemiology Program Office, Public Health Prevention Service, currently assigned to the Rhode Island Department of Health, Division of Disease Prevention and Control, Diabetes Control Program.

Joann M. Lindenmayer, DVM, MPH, is Assistant Professor (Research), Department of Community Health, Brown University School of Medicine, and Chronic Disease Epidemiologist, Division of Disease Prevention and Control, the Rhode Island Department of Health.

Dona Goldman, RN, MPH, is the Program Director of the Diabetes Control Program, Division of Disease Prevention and Control, Rhode Island Department of Health, and Faculty member at Roger Williams University.

References

- Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Available at www.cdc.gov/diabetes/.
- Harris MI, Flegal KM, Cowie CC, et al. Prevalence of diabetes, impaired fasting glucose, and impaired glucose tolerance in U.S. adults. The Third National Health and Nutrition Examination Survey, 1988-1994. *Diabetes Care* 1998; 21(4):518-524.
- US Department of Health and Human Services. Healthy People 2010: 2nd ed. Understanding and Improving Health and Objectives for Improving Health. (Volume 1) Washington, DC: U.S. Government Printing Office. November 2000.
- Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Eng J Med* 2002; 346:393-403.
- U.S. Department of Health and Human Services, Public Health Service. Health Risks in America: Gaining Insight from the Behavioral Risk Factor Surveillance System. Atlanta, GA: CDC, update.
- Bowman BA. Can Type 2 Diabetes be Prevented? *Lecture*. Centers for Disease Control and Prevention, Diabetes Program Directors and Coordinators Meeting, November 2001.

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Rhode Island Department of Health
Office of Health Statistics
3 Capitol Hill
Providence, RI 02908

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